

April 13, 2006  
Case No. DE000234 (7790/280)  
Serial No.: 10/023,168  
Filed: December 18, 2001  
Page 2 of 11

### **CLAIM LISTING**

A listing of the entire set of pending claims 1-8 and 12-16 and the entire set of withdrawn claims 9-11 is submitted herewith per 37 CFR §1.121. This listing of claims 1-16 will replace all prior versions, and listings, of claims in the application.

1. (Previously Presented) A detector for a detection of electromagnetic radiation, said detector comprising:

- at least one scintillator (6);
- at least one CMOS chip (3); and
- a ceramic basic element (4),

wherein a respective intermediate layer (2) that is defined in respect of its gap width is arranged each time between the scintillator (6) and the CMOS chip (3) and between the CMOS chip (3) and the ceramic basic element (4), and

wherein said intermediate layer (2) contains at least two adhesives (A, B) of different consistency and spacers (5).

2. (Previously Presented) The detector as claimed in claim 1, wherein the gap width of the intermediate layer (2) is determined by quantities of the adhesive (A) and a plurality of spacers (5).

3. (Previously Presented) The detector as claimed in the claims 1 and 2, wherein a first adhesive (A) is a fast curing epoxy resin, cyanoacrylate or acrylate adhesive.

4. (Previously Presented) The detector as claimed in claim 3, wherein at least some quantities of the first adhesive (A1) are applied directly to the surfaces of the CMOS chip (3) and the ceramic basic element (4) and that a plurality of spacers (5) is arranged between the surfaces of the CMOS chip (3) and the ceramic basic element (4).

5. (Previously Presented) The detector as claimed in claim 4, wherein each spacer (5) is a wire that consists notably of the materials Au and AlSi.

April 13, 2006  
Case No. DE000234 (7790/280)  
Serial No.: 10/023,168  
Filed: December 18, 2001  
Page 3 of 11

6. (Previously Presented) The detector as claimed in claim 3, wherein at least some quantities of a second adhesive (A2) are applied to the surface of the scintillator (6) that faces the CMOS chip as well as to a plurality of bumps that are present on the CMOS chip (3).

7. (Previously Presented) The detector as claimed in claim 1, wherein a first adhesive (B) is a low-viscosity adhesive, notably on an epoxy resin basis.

8. (Currently Amended) The detector as claimed in claim 1, wherein the ceramic basic element (4) is based on an aluminum oxide.

9. (Withdrawn) A method of forming an intermediate layer between a CMOS chip (3) and a ceramic basic element (4), where spacers (5) and quantities of an adhesive (A1) are applied to a surface of the ceramic basic element (4) during the first step, where the applied quantities of an adhesive (A1) project from the spacers (5), where subsequently the CMOS chip (3) is placed on said quantities and is bonded and fixed while resting on the spacers (5) and quantities of the adhesive (A1), and where during a second step the gap remaining between the CMOS chip (3) and the ceramic basic element (4) is completely filled with an adhesive (B) which is applied to a side of the CMOS chip (3) in the horizontal position and enters the gap under the influence of capillary forces and is subsequently allowed to cure.

10. (Withdrawn) A method of forming an intermediate layer between a scintillator (6) and a CMOS chip (3), where at least quantities of the adhesive (A2) are applied, during the first step, to the bumps that are provided in optically inactive regions of the CMOS chip surface, after which the scintillator (6) is arranged on the bumps and is bonded and fixed while resting on the bumps and on the quantities of an adhesive (A2), and where in a second step the gap remaining between the scintillator (6) and the CMOS chip (3) is completely filled with an adhesive (B) which is applied

April 13, 2006  
 Case No. DE000234 (7790/280)  
 Serial No.: 10/023,168  
 Filed: December 18, 2001  
 Page 4 of 11

to one side of the scintillator (6) in the horizontal position and enters the gap under the influence of capillary forces and is subsequently allowed to cure.

11. (Withdrawn) A method of forming a detector for the detection of electromagnetic radiation as claimed in claim 1, where first an intermediate layer (2) is formed between a CMOS chip (3) and a ceramic basic element (4) in conformity with claim 9 and subsequently an intermediate layer (2) is formed between a scintillator (6) and a CMOS chip (3) in conformity with claim 10.

12. (Original) An X-ray examination apparatus that includes at least one detector as claimed in one of the claims 1 to 8.

13. (Previously Presented) A detector for detecting electromagnetic radiation, said detector comprising:

- a ceramic basic element (4);
- a CMOS chip (3); and
- a first intermediate layer (2) between said ceramic basis element (4) and said CMOS chip (3), said first intermediate layer (2) including
  - a first spacer (5) in contact with said ceramic basic element (4) and said CMOS chip (3),
  - a first adhesive (A1) adhered to said ceramic basic element (4) and said CMOS chip (3), and
  - a second adhesive (B) adhered to said ceramic basic element (4) and said CMOS chip (3).

14. (Previously Presented) The detector of claim 13, wherein said second adhesive (B) is between and adhered to said first spacer (5) and said first adhesive (A1).

15. (Previously Presented) The detector for detecting electromagnetic radiation of claim 13, further comprising:

April 13, 2006  
Case No. DE000234 (7790/280)  
Serial No.: 10/023,168  
Filed: December 18, 2001  
Page 5 of 11

a scintillator (6); and  
a second intermediate layer between said CMOS chip (3) and said scintillator (6), said second intermediate layer including  
a second spacer (5) in contact with said CMOS chip (3),  
a third adhesive (A2) adhered to said second spacer (5) and said scintillator (6), and  
a fourth adhesive (B) adhered to said CMOS chip (3), said scintillator (6), said second spacer (5) and said third adhesive (A2).

16. (Previously Presented) The detector of claim 15,  
wherein said second intermediate layer further includes a third spacer (5) in contact with said CMOS chip (3); and  
wherein said fourth adhesive (B) is between and adhered to said scintillator (6) and said third spacer (5).